

**JARAMOGI OGINGA ODINGA UNIVERSITY OF SCIENCE AND TECHNOLOGY**

**SCHOOL OF INFORMATICS AND INNOVATIVE SYSTEMS**

**UNIVERSITY EXAMINATION FOR THE DEGREE OF**

**BACHELOR OF EDUCATION SCIENCE WITH IT**

**3<sup>RD</sup> YEAR 1<sup>ST</sup> SEMESTER 2017/2018 ACADEMIC YEAR**

**MAIN CAMPUS**

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**COURSE CODE: SCS 324**

**COURSE TITLE: STATISTICAL ANALYSIS WITH SPSS**

**EXAM VENUE:**

**STREAM: EDUCATION WITH IT**

**DATE: APRIL 2017**

**EXAM SESSION:**

**TIME: 2.00 HOURS**

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**INSTRUCTIONS:**

- 1. Answer Question 1 (Compulsory) and ANY other two questions**
- 2. Candidates are advised not to write on the question paper**
- 3. Candidates must hand in their answer booklets to the invigilator while in the examination room**

**QUESTION ONE 30 MARKS**

- a) Discuss
  - i) ANY SEVEN characteristics of the variable view and
  - ii) Any THREE attributes of the data view in SPSS data editor (10 marks)
- b) Distinguish between the **FOUR** scales of measurement as used in SPSS data editor (4 marks)
- c) Explain any **SIX** rules that must be followed when selecting variable names (6 marks)
- d) Distinguish between the **FOUR** windows of SPSS data editor (4 marks)
- e) The table below is the output viewer of the bivariate correlation between the sessions of lectures attended by the third year students and their level of satisfaction in SCS 324 course unit

		Sessions	Satisfaction
<b>Sessions</b>	Pearson Correlation	1	.530**
	Sig. (2-tailed)	.	.003
	N	30	30
<b>Satisfaction</b>	Pearson Correlation	.530**	1
	Sig. (2-tailed)	.003	.
	N	30	30

**\*\*.** Correlation is significant at the 0.001 level (2-tailed).

Use the table findings to discuss the opinion of the class concerning SCS 324 course unit (6 marks)

**QUESTION TWO 20 MARKS**

- a) Distinguish between
  - i) Skewness and Kurtosis using graphical illustrations
  - ii) Standard Deviation (SD) and Standard Error of Measurement (SEM) (6 Marks)
- b) The SPSS output viewer produced the cross-tabulation table of sex and counselor with expected counts, and a table listing the chi-square and related tests as shown below.

**Sex\*counsellor Crosstabulation**

			counsellor		Total
			John	Jane	
Sex	male	Count	10	4	14
		Expected Count	6.5	7.5	14.0
		% within Sex	71.4%	28.6%	100.0%
	female	Count	4	12	16
		Expected Count	7.5	8.5	16.0
		% within Sex	25.0%	75.0%	100.0%
Total		Count	14	16	30
		Expected Count	14.0	16.0	30.0
		% within Sex	46.7%	53.3%	100.9%

**Chi-Square Tests**

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi Square	6.467 <sup>b</sup>	1	.011		
Continuity Correlation <sup>a</sup>	4.736	1	.030		
Likelihood Ratio	6.709	1	.010		
Fisher's Exact Test				.026	.014
Linear-by-Linear Association	6.251	1	.012		
N of Valid Cases	30				

- a. Computed only for a 2x2 table
- b. 0 cells (.0%) have expected count less than 5. The minimum expected count is 6.53

Discuss the findings from the two tables (6 Marks)

- c) List and explain four major assumptions that must be complied with to manage data ailments before conducting a parametric test (8 Marks)

**QUESTION THREE 20MARKS.**

- a) Describe the four areas that characterizes the syntax editor window (4 marks)
- b) Describe any four features of the syntax view that provides specifically designed environment for creating, editing and running around syntax (4 marks)
- c) Distinguish between the four measurement levels of the variable view of the SPSS data editor (8 Marks)
- d) Define the following terms as used in measurement of association
  - i) Coefficient of correlation
  - ii) Degree of variability
  - iii) Level of significance
  - iv) Degree of freedom (4 Marks)

**QUESTION FOUR 20MARKS**

The tables below show the SPSS output display of the relationship between mileage, horsepower, weight and engine displacement for an automobile:

**Model Summary**

Model	R	R Square	Adjusted R Square	Std Error of the Estimate
1	.822 <sup>a</sup>	.676	.673	4.461

a. Predictors: (Constant), Vehicle Weight (lbs.), Horsepower, Engine Displacement (cu. inches)

**Coefficients<sup>a</sup>**

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	44.015	1.272		34.597	.000
Horsepower	-.056	.013	-.273	-4.153	.000
1 Vehicle weight (lbs.)	-.005	.001	-.504	-6.186	.000
Engine Displacement(cu. inches)	-.006	.007	-.074	-.786	.432

a. Dependent Variable: Miles per gallon

a) State the null and Alternative hypothesis for the study (6marks)

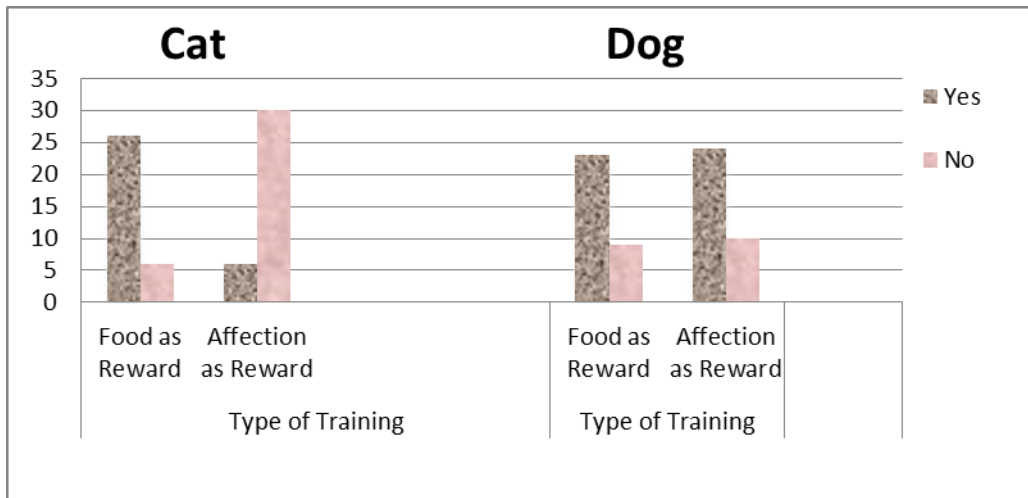
b) Complete the regression equation for the given output and explain its key elements (4 marks)

c) Write an elaborate report based on the SPSS output given above (6 marks)

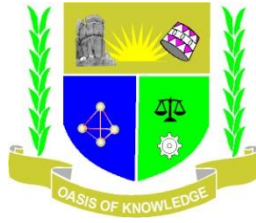
d) What are the advantages of using regression analysis over use of correlation analysis (4 marks)

### **QUESTION FIVE 20 MARKS**

- a) The SPSS output viewer produced the graphical responses to show if the dog and cat danced when it was rewarded by food or rewarded by affection in a training session as shown below;



- i) List any four attributes that characterizes the graphs shown (2 marks)
- ii) Discuss the findings of the experiment as shown from the graphical representation (6 marks)
- b) Explain the functions of any four attributes of the data icon pull down menu in the menu bar of the SPSS data editor used for editing data before the analysis is done (4 marks)
- c) Describe the processes involved in carrying out the following operations (8marks)
- Editing
  - Adding Cases
  - Deleting cases
  - Saving data file



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**COURSE Description**

**Course Title:** Statistical Analysis with SPSS  
**Course Code:** SCS 324  
**Hours Taught:** 42 Hours  
**Prerequisites:** Statistical Methods  
**Course Instructor:** Koyugi Julius  
[koyugio@yahoo.com](mailto:koyugio@yahoo.com)  
**0721943754**

<b>Course Purpose</b>	The courses focuses on use of statistical package for social sciences (SPSS) to, transform, compute and Analyze data, edit and interpret data as it appears from the output viewer of the SPSS data editor.
<b>Course objectives</b>	At the end of this course, the student should be able to: <ul style="list-style-type: none"> <li>• Manage SPSS data files</li> <li>• Manipulate data in the SPSS data files</li> <li>• Carry out statistical Analysis using SPSS</li> <li>• Represent SPSS data output in Tabular and graphical form</li> <li>• Interpret the meaning of data</li> </ul>
	<b>Course Content</b>
<b>course content</b>	<ol style="list-style-type: none"> <li>1. File management: File systems, creating new files, opening saved files, saving files,</li> <li>2. Printing</li> <li>3. Editing: cut and paste, copy and paste, editing options:</li> <li>4. Data manipulation: Variable definition, inserting variables, Inserting cases, variable transformation;</li> <li>5. Statistical Analysis: summarize, custom tables, comparing means, general linear model, correlation and regression, data reduction, reliability analysis, non-parametric tests.</li> <li>6. Types of Graphs: Bar charts, line graphs, pie chart, box plots, error bars, scatter plots, histograms, p-p plot, time series.</li> </ol>
<b>Teaching</b>	The course will be conducted through lectures, exercises and practical work and

<b>Methodology</b>	Assignments	
<b>Course Evaluation</b>	Continuous Assessment Tests	30%
	Final Examinations	70%
	<b>Total</b>	<b>100%</b>
<b>References</b>	<ol style="list-style-type: none"> <li>1. Babraham, J. (2007). Introduction to Statistics with SPSS (15.0), Bioinformatic version 2.3 (Public)</li> <li>2. Moore, D. S., William I. Notz, W. I. &amp; Michael A. Flinger, M. A. (2014). (6<sup>th</sup> Ed) Basic Practice of Statistics. W.H. Freeman and Company.</li> </ol>	

Approved by:

HOD: \_\_\_\_\_

Dean: \_\_\_\_\_